

THE CLAIMS

Please AMEND claim 15 as follows. A copy of all pending claims and a status of the claims is provided below.

1. (Previously presented) A universal battery charger for charging batteries with different number of cells connected in series, comprising:

a power supply circuit that produces a predetermined number of voltages different in level for applying selected one of the predetermined number of voltages to a battery, the predetermined number of voltages including a highest voltage and a lowest voltage;

a battery voltage detecting circuit that detects a voltage across the battery before charging the battery;

a switch that is connected between the power supply circuit and the battery and is turned ON to allow charging of the battery and OFF to interrupt the power supply circuit from the battery; and

a control device that selects one of the predetermined number of voltages depending upon the detected voltage across the battery before the charging of the battery and then controls the switch to turn ON so that a rush current does not flow in the battery at the start of charging.

2. (Previously presented) The universal battery charger according to claim 1, wherein the control device controls the power supply circuit to produce a voltage equal to or close to the

voltage detected by the battery voltage detecting circuit and further controls the switch to turn on.

3. (Original) The universal battery charger according to claim 2, wherein the control device controls the switch to turn on after expiration of a predetermined period of time from a time when the voltage equal to or close to the voltage detected by the battery voltage detecting circuit is produced by the power supply circuit.

4. (Original) The universal battery charger according to claim 3, wherein the voltage close to the voltage detected by the battery voltage detecting circuit is a voltage above and closest to the voltage detected by the battery voltage detecting circuit among the predetermined number of voltages.

5. (Original) The universal battery charger according the claim 3, wherein the control device further controls the power supply circuit to produce the highest voltage after the switch is turned on.

6. (Original) The universal battery charger according to claim 2, further comprising a battery connection detecting device that detects that the battery is connected for being charged, wherein when the battery connection detecting device detects that the battery is connected, the battery voltage detecting circuit detects a voltage across the battery and the control device

controls the power supply circuit to produce the voltage equal to or close to the voltage detected by the battery voltage detecting circuit, and thereafter controls the switch to turn on.

7. (Original) The universal battery charger according to claim 6, wherein when the battery connection detecting device detects that the battery is not connected, the control device controls the power supply circuit to produce the lowest voltage.

8. (Original) The universal battery charger according to claim 2, wherein when a difference between the voltage detected by the battery voltage detecting circuit and the voltage produced by the power supply circuit falls within a predetermined range, the control device controls the switch to turn on.

9. (Original) The universal battery charger according to claim 8, wherein the voltage close to the voltage detected by the battery voltage detecting circuit is a voltage above and closest to the voltage detected by the battery voltage detecting circuit among the predetermined number of voltages.

10. (Original) The universal battery charger according to claim 9, wherein the control device further controls the power supply circuit to produce the highest voltage after the switch is turned on.

--5--

11. (Previously presented) The universal battery charger according to claim 1, wherein the switch is directly connected to the battery.

12. (Previously presented) The universal battery charger according to claim 1, wherein the switch is directly connected to the power supply circuit.

13. (Previously presented) The universal battery charger according to claim 1, wherein each of the predetermined number of voltages is applied to the battery by substantially the same components of the power supply circuit.

14. (Previously presented) A universal battery charger for charging batteries having different numbers of cells connected in series, comprising:

a power supply that produces more than two different predetermined number of voltages each different in level for applying a selected one of the predetermined number of voltages to a battery, the predetermined number of voltages including a highest voltage and a lowest voltage;

a switch connected between the power supply and the battery and is turned ON to connect the selected one of the predetermined number of voltages to the battery and OFF to interrupt the power supply from the battery; and

a controller that controls the power supply to produce a voltage to be applied to the battery and also controls the switch by delaying closure of the switch after application of a signal

to control the power supply to prevent a rush current flowing in the battery when the voltage applied to the battery is switched from one level to another level.

15. (Currently amended) A method of charging a battery using a universal battery charger comprising:

a power supply circuit that produces a predetermined number of voltages having a first level, a second level which is lower than the first level and a third level which is lower than the second level, and a selected one of the predetermined number of voltages being applied to the battery;

a battery voltage detecting circuit that detects a voltage across the battery before charging the battery;

a switch that is connected between the power supply circuit and the battery and is turned ON to allow the charging of the battery and OFF to interrupt the power supply circuit from the battery; and

a control device that selects one of the predetermined number of voltages to be applied to the battery;

wherein the method comprises:

first step of selecting a voltage from having the third level before the battery is connected;

second step of selecting a voltage from the first, second and third levels to be applied to the battery when after the battery is connected, depending upon the voltage across the battery detected by the battery voltage detecting circuit; and

third step of selecting a voltage having the first level to be applied to the battery after the second step.

16. (Previously presented) A method of charging a battery as defined in claim 15, wherein the third step is performed when a predetermined period of time has elapsed after the second step.

17. (Previously presented) A method of charging a battery as defined in claim 15, wherein the third step is performed when the voltage produced by the power supply circuit has dropped to a level close to the detected battery voltage.